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METHODS OF TEST FOR PULP

PART 21 DETERMINATION OF DRY MATTER CONTENT

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METHODS OF TEST FOR PULP

PART 21 DETERMINATION OF DRY MATTER CONTENT

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Indian Standard

METHODS OF TEST FOR PULP

PART 21 DETERMINATION OF DRY MATTER CONTENT

0. FOREWORD

0.1 This Indian Standard (Part 21) was adopted by the Indian Standards Institution on 12 December 1984, after the draft finalized by the Paper and Its Products (Excluding Packaging Materials) Sectional Committee had been approved by the Chemical Division Council.

0.2 This standard describes the gravimetric determination of dry matter content of the pulp.

0.3 This method is applicable to moist or air-dry pulp which does not contain any appreciable quantity of matter, other than water, volatile at the temperature specified for the drying. It is used, for example, with pulp samples taken for chemical and physical tests in the laboratory, which require concurrent determination of dry matter content.

0.4 In the formulation of this standard, considerable assistance has been derived from ISO 638-1978 'Pulps — Determination of dry matter content', issued by the International Organization for Standardization.

0.5 In reporting the results of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS : 2-1960*.

1. SCOPE

1.1 This standard (Part 21) specifies a method for determination of dry matter content of pulp samples.

1.2 This method is not applicable to the determination of the dry matter content of slush pulp or to the determination of the soluble mass of pulp lots.

2. TERMINOLOGY

2.1 For the purpose of this standard, the following definition shall apply.

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*Rules for rounding off numerical values (*revised*).

2.1.1 *Dry Matter Content of a Pulp Sample* — The ratio of the mass of a test piece, after drying to constant mass at a temperature of 105 ± 2°C under specified conditions, to its mass at the time of sampling. The dry matter content is expressed as a percentage.

3. APPARATUS

3.1 Weighing Containers — water-vapour proof and with tightly fitting lids.

3.2 Oven — capable of being controlled at 105 ± 2°C, and suitable ventilated.

3.3 Balance — with an accuracy of 0·001 g.

3.4 Desiccator

4. PREPARATION OF SAMPLE

4.1 Cut or tear the pulp sample into pieces of suitable size, taking into account the method of test for which the dry matter content is to be determined. In handling the pulp, special precautions shall be taken to avoid any change in moisture content. Samples which have been kept in water-vapour proof containers shall be quickly cut and weighed to minimize any variation in moisture content.

5. PROCEDURE

5.1 Carry out all weighing to the nearest 0·001 g. Weigh about 10 g of pulp in the closed, previously dried and weighed container. After weighing, open the container and place it with test piece and lid in the oven and heat at 105 ± 2°C for a sufficiently long period (*see* Note) until constant mass is reached. The test piece is considered to have reached constant mass when the difference between two consecutive weighings is not more than 0·1 percent of the original wet mass of the test piece. The drying period between two consecutive weighings shall be at least one-half of the minimum initial drying time.

After drying, fit the lid on to the container and allow the test piece to cool in the desiccator for 45 minutes. After cooling, equalize the air-pressures outside and inside the container by quickly half-opening and reclosing the lid. Weigh the container and its contents.

NOTE — Do not introduce new test pieces into the oven during drying. The preliminary drying period should not be less than 3 h and not more than 16 h.

Carry out two determinations or as many as stated in the method of test for which the dry matter content is determined.

6. EXPRESSION OF RESULTS

6.1 The dry matter content (X), expressed as a percentage by mass, is given by the formula:

$$X = \frac{m_2}{m_1} \times 100$$

where

m_2 = mass, in grams, of the pulp after drying; and

m_1 = mass, in grams, of the pulp before drying.

Express the dry matter content to the first decimal place as a mean of all parallel determinations.

7. TEST REPORT

7.1 The test report shall include the following particulars:

a) Results, expressed as a percentage;

b) Any unusual feature noted during the determination; and

c) Any operation not specified in this standard, or regarded as optional, which may have affected the results.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

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